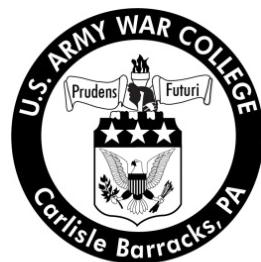


Strategy Research Project

Cultural Change and the Operational Energy Strategy

by

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United States Army War College
Class of 2012

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USAWC STRATEGY RESEARCH PROJECT

CULTURAL CHANGE AND THE OPERATIONAL ENERGY STRATEGY

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Energy security is essential not only to the military but to the nation as well. Operations in Iraq and Afghanistan have highlighted the critical, dangerous, and enormous requirement for fuel to sustain combat operations on a daily basis. The recently approved Department of Defense (DoD) Operational Energy Strategy in May 2011 will require DoD Components to culturally change the way they operate with respect to having more fight with less fuel, more options with less risks, and more capability with less costs. In the book *Leading Change*, the author John Kotter outlines eight steps for creating major change within an organization, and this will be used as a framework for examining DoD's Operational Energy Strategy. From this examination, this paper proposes three recommendations as part of cultural change within DoD associated with the Operational Energy Strategy that involve reviewing pending national energy legislation, adding specific tasks to DoD Universal Joint Task List and Army Universal Task List, and ensuring that Joint and DoD Component's leaders continue to support this strategy. These three recommendations will help ensure cultural change is enduring for the years ahead that follow the 2011 Operational Energy Strategy.

CULTURAL CHANGE AND THE OPERATIONAL ENERGY STRATEGY

Energy security needs to be one of the first things we think about, before we deploy another soldier, before we build another ship or plane, and before we buy or fill another rucksack.¹

—ADM Mike Mullen,
Energy Security Forum, October 2010

The above quote emphasizes the significance of the Department of Defense's (DoD) concern for energy security and developing an overall strategy to provide guidance and allow service members to safely perform their missions. This strategic level guidance must include the synchronized efforts from multiple agencies and departments from the United States Government to provide the best possible energy efficient facilities and equipment to the Warfighter in concert with a major military culture change to conserve more energy.

Since the start of United States military operations in Afghanistan in 2001 and Iraq in 2003, the DoD, in concert with U.S. agencies, has provided the necessary energy resources to support the Warfighter. A heavy emphasis was placed on energy to power systems for Soldiers equipment and provide large amounts of fuel to operate major forward operating bases, combat outposts, and smaller patrol bases. The April 2004 attack on a fuel convoy near Baghdad, Iraq that led to injuries and death to military and civilians, along with destroyed equipment and cargo "... brought about a searching examination of these systematic problems and led to major improvements in convoy operations."² This event clearly identified the need to secure tactical and operational resources to sustain military operations. Furthermore, this tactical event had a strategic

level consequence that resulted in shaping and guiding better energy efficient equipment, methods and policy to protect and sustain the Warfighter.

As the U.S. military has withdrawn most of its military forces in Iraq, begins to drawdown military forces in Afghanistan, and operate on less future dollars, it is crucial not to lose the momentum in work achieved to this point in research, development, testing and implementation of energy efficient equipment and systems. At the same time, the military must maintain its competitive edge at being the best trained force in the world with the best energy efficient equipment, both of which require future investments. The last 10 years of war have tested the military and the civilian sector to be the best in fighting and sustaining our nation's wars. We must learn from our energy successes and culturally embed them within military and civilian leaders.

Within this context, this paper will explain how the DoD must undergo a cultural change to fully implement the new Energy for the Warfighter: Operational Energy Strategy approved in May 2011. In pursuit of this outcome, this paper will use insights from Kotter's book *Leading Change*, which outlines eight steps for creating major change, to examine current progress and identify future initiatives to transform and ensure effective implementation of three major focus areas associated with this energy strategy. Kotters eight steps are:³ establishing a sense of urgency, creating the guiding coalition, developing a vision and strategy, communicating the change vision, empowering broad based action, generating short term wins, consolidating gains and producing more change, and anchoring approaches in culture.

The Operational Energy Strategy three focus areas, which will be explained in more detail later in this paper and assessed through Kotter's eight steps, include the

following: more fight using less fuel in order to reduce the demand for energy in military operations; more options with less risk in order to expand and secure the supply of energy to military operations; and more capability with less cost in order to build energy security into the future force.⁴ From this assessment, this paper will suggest further ways in which to update the current Operational Energy Strategy by reviewing pending national energy legislation along with specific ways for the DoD and the Army to add emphasis for this strategy through changes in its training doctrine and leadership focus.

Background

The purchase of energy in enormous quantities is essential for day to day operations on installations and military forces stationed around the world. The Defense Logistics Agency - Energy purchased almost 129 million barrels of petroleum in FY09. Of that amount, an estimated 115 million barrels are tied to use in tactical equipment, which is roughly 90 percent of the fuel procured.⁵ An estimated 70 to 80 percent of resupply by ground in a theater of operation is for water and fuel.⁶ Reducing the demand for energy will greatly decrease the considerable number of ground convoys for resupply and exposure to the enemy as well as save money, all of which is extremely important for effective and efficient operational logistics.⁷

Numerous public laws and acts have been drafted and approved over that last several decades to allow the United States to focus on becoming energy independent and more energy efficient. To focus the Defense Department's efforts in this area, "on May 2, 2006 the Under Secretary of Defense for Acquisition, Technology, and Logistics directed the Defense Science Board to create a Task Force to examine DoD Energy Strategy."⁸ The final report from this Task Force contained several findings and

recommendations that addressed the need for an overall strategy and reduction in energy demand. Specifically, this report identified that the DoD lacks a unifying vision for its components to follow within a formal structure. It also identified the need for a senior energy official that would provide departmental oversight of the overall future energy security program.⁹

In December 2009, The Army Capstone Concept was approved that looks ahead to the years 2016-2028 and identifies the broad capabilities that will be needed to accomplish challenging missions.¹⁰ This document identified and emphasized the impact of budding energy technology in the future operational environment. It identified needed technology developments that would improve the fighting capability effectiveness to include renewable energy sources, fuel efficient vehicles, and generator management. These ideas were broadly aimed at reducing fuel requirements that then allows greater freedom of movement for maneuver commanders over large distances.¹¹

In August 2010, The Army Operating Concept was published as a follow on to the Army Capstone Concept. The Army Operating Concept described how the Army will fight as part of a joint force in future operations.¹² Simply stated, within Full Spectrum Operations, the Army must have the right amount of sustainment at the right time and in the right place. Sustainment must be continuous and planned for both emergency and routine missions. Technology continues to improve energy efficiencies on equipment to reduce the bulk fuel requirements over long distances in austere environments. This operating concept concludes with the following guidance: ". . . to deploy, supply, and maintain the force successfully, commanders must integrate sustainment demands into operational plans using networked joint and Army systems."¹³

Assessment of Energy Change: Kotter's 8 Steps

In the book *Leading Change*, Kotter lays out eight steps to produce successful change in organizations. Kotter's eight step process provides a framework for leaders of large organizations to use to help them adjust to a new environment along with a long term timeline to culturally embrace organizational change. These steps, described earlier, begin with establishing a sense of urgency and conclude with anchoring new approaches in culture. They will now be used to assess current efforts and identify future initiatives.

First Step. The first step Kotter highlights is to establish a sense of urgency as this is crucial for acquiring the necessary leadership focus and teamwork, while at the same time reducing complacency throughout the organization. Without urgency it is difficult to form a group with a direction and to force the group to dedicate the time required to create a corresponding change vision. If subordinates don't feel the same urgency level, no matter how tough executives push or threaten subordinates, the impetus for change will fall short of intended goals. Subordinates and other workers in the organization will think of abundant ways to stall cooperation for a process they may not agree with or feel is completely wrong.¹⁴

The Center of New American Security (CNAS) published *Energy, Climate and National Security* in June 2008 that emphasized the need for "the United States to have a strategy that would cut dependence on oil and reduce our greenhouse gases."¹⁵ This, and many other documents, became the basis for creating the guiding coalition as part of Kotter's change process within the DoD and its future operational energy strategy. A co-author of the report is the first and current Assistant Secretary of Defense for

Operational Energy Plans and Programs; The Honorable Sharon Burke, who has held this position since its creation.

In May 2009, the Center for Naval Analyses (CNA) Military Advisory Report articulated that the DoD is a major energy consumer and as such, it also is vulnerable by its current energy position.¹⁶ It identified that the DoD must look internally to fix its own systems to reduce its huge energy appetite. The DoD has the capability to explore better technology to reduce fuel consumption and make better equipment more fuel efficient. By doing so, the DoD can also stimulate the economy and allow further development of systems the nation can use to reduce our dependence on foreign fossil fuel and our increase our national security. It concluded that the business as usual practice of assuming an abundance of oil is a high risk threat.¹⁷

Between the CNAS, CNA, Defense Science Board reports, and national energy legislation, the sense of urgency has been established to lay the ground work for something to be done to become more energy efficient. The right people in the right organizations now have the responsibility to build the support for the nation and the DoD to reduce fossil fuel requirements that support daily operations. This leads to Kotter's second step, which is creating the guiding coalition.

Second Step. A strong guiding coalition with a shared objective and the right mix of people and level of trust is essential in the early stages of any restructuring within an organization.¹⁸ A guiding coalition can sort out additional data and facts in a timelier manner, and their work is more productive as an effective company team. The guiding coalition can speed up the implementation of new methods because people in a position of power are informed and able to make critical decisions.¹⁹ Leadership within the team

is essential and a "guiding coalition made up of only managers will cause major change efforts to fail."²⁰

The CNA Military Advisory Board identified in its May 2009 report that DoD leadership must take an active role in transforming its energy posture and stated ". . . leadership must demonstrate the proper focus and attention . . ." for development, testing, and deploying new technologies as the DoD's role in national security.²¹ As part of their findings, the board identified the transformation process will require patience, staying power, and many years to fully embrace. It must bridge generations and provide a solid vision to be achievable.²²

The DoD will have to create the guiding coalition to implement the needed change to execute the recently published Operational Energy Strategy. The Duncan-Hunter National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2009, became effective on October 14, 2008,²³ and this Act formally established the Director of Operational Energy Plans and Programs (OEPP) within the DoD with specifically assigned duties.²⁴ In essence this Act created the leader of the guiding coalition and with the number one duty to provide leadership to the department and armed services for operational energy plans and programs followed by developing a DoD operational energy strategy. This person also must coordinate activities within the department that relate to the implementation of the strategy, energy demands, research, development, and operational energy initiatives.²⁵

With respect to the Operational Energy Strategy, within 90 days of an appointment of a director to the newly created position, each military department was required to designate a senior official who would be accountable for energy plans and

programs. They would be mandated to coordinate with the director and to implement specifics from the operational energy strategy when approved and published.²⁶ The Duncan-Hunter NDAA also included specific requirements for the director relating to budgetary and financial matters. It called for the director to review proposed budgets from the departments and armed services within DoD relating to operational energy no later than January 31st prior to the upcoming fiscal year.²⁷

The 2010 Quadrennial Defense Review (QDR) also provided direction for the guiding coalition. It declared that the DoD will implement requirements from the Duncan-Hunter FY09 NDAA, specifically key performance parameters for energy efficiency. The QDR also required operational energy be considered into future force planning, development, acquisition and the use of the Fully Burdened Cost of Fuel (FBCF).²⁸ The FBCF is defined as "the commodity price for fuel plus the total cost of all personnel and assets required to move and, when necessary, protect the fuel from the point at which the fuel is received from the commercial supplier to the point of use."²⁹

In an effort to leverage commercial industry and intellect of many diverse organizations, the 2010 QDR identified the need for DoD to partner with academia and other U.S. agencies from initial research through the evaluation phase of the latest energy technologies.³⁰ In July 2010, the DoD and the Department of Energy (DoE) signed a Memorandum of Understanding (MOU) to ". . . strengthen coordination efforts to enhance national energy security, and demonstrate Federal Government leadership in transitioning America to a low carbon economy."³¹

The MOU identifies eight areas to combine efforts ranging from evaluating and developing energy systems, pilot testing, joint initiatives, professional exchanges and

collaboration on nuclear power. The two department's senior representatives will form to become an executive committee to monitor the eight activities and others that may be required.³² The committee agreed to meet at least four times annually and, if required, establish working groups as per the MOU to conduct cooperative activities relating to energy security needs and associated priorities. Both the committee and the "working groups may make consensus recommendations based on their collaboration."³³ The recommendations are provided to both the Under Secretary of Defense (Acquisition, Technology, Logistics), and the DoE Deputy Secretary for future decisions.³⁴

The Office of the Assistant Secretary of Defense for Operational Energy Plans and Programs (OEPP) was created in the summer of 2010 to ". . . strengthen the energy security of U.S. military operations."³⁵ Additionally this person, working in conjunction with elements from academia, industry, and DoE, and within the QDR guidance, essentially expanded the guiding coalition. The Ike Skelton NDAA for Fiscal Year 2011, formally changed the name of the Director OEPP to the Assistant Secretary of Defense for OEPP.³⁶ As stated earlier and required by public law, the Assistant Secretary for OEPP must create a strategy for the DoD to follow.

Third Step. Kotter's third step is to develop a vision and strategy. A vision is essential because it provides a depiction of the future with an explanation on why subordinates within the organization should want to create or work towards that future. The vision provides an overarching end state and inspires employees to move in the direction which the strategy articulates. It also simplifies many detailed decisions and overcomes potential resistance to change.³⁷ To get to the future a ". . . strategy provides both logic and a level of detail to show how a vision can be accomplished."³⁸ Kotter

emphasizes a relationship between vision, strategy, plans, and budgets with respect to leadership and management. Leadership creates vision and strategy, whereas management creates plans and budgets. A good vision with a sound strategy, logical plan and supporting budget projections can invigorate the necessary action to produce major change.³⁹

In May 2011, the Office of the Assistant Secretary of Defense for OEPP published Energy for the Warfighter: Operational Energy Strategy to guide the DoD in how to better use energy resources. This document provides vision to highlight that energy security is directly related to national security, and the DoD has an opportunity to lead the nation to become more efficient. It provides focus for DoD Components to implement the strategy. Operational Energy is defined as ". . . the energy required for training, moving, and sustaining military forces and weapons platforms for military operations. The term includes energy used by tactical power systems, generators and weapons platforms."⁴⁰

The Operational Energy Strategy has three focus areas that will significantly change the DoD's view on energy:⁴¹ (1) More fight, less fuel to include reducing the demand for energy in military operations; (2) More options, less risk to include expanding and securing the supply of energy to military operations; (3) More capability, less cost to include building energy security into the future force. The Operational Energy Strategy provides a vision for the DoD to follow in the years ahead and gives direction to the DoD Components in broad terms to achieve the end state of the focus areas within the strategy. It links the national strategy with energy security in such a way

as to not create resistance to change. The vision and strategy must now be effectively communicated to the masses through various media as Kotter's fourth step.

Fourth Step. Kotter emphasizes several key elements required to effectively communicate the vision when he states, "The time and energy required for effective vision communication are directly related to the clarity of the message."⁴² This communication includes simplicity, using metaphors, an analogy, or an example to frame the vision. Kotter also believes that using multiple and repetitive forums, to include big and small meetings, memos, newspapers, formal and informal interaction, are all needed to effectively spread the vision. These elements listed so far must be done using leadership by example, which is an important way to communicate a new direction. The credibility of the vision and the critical importance of learning to give and take, involves listening before speaking to effectively communicate the vision.⁴³

The strategic communications message associated with the objective, More Fight, Less Fuel, is that ". . . the Department needs to reduce the overall demand for operational energy and improve efficiency of military energy use in order to enhance combat effectiveness and reduce risks and costs for military missions."⁴⁴ The significant amount of fuel currently used in support of military operations results in both logistical and tactical risks. Energy is critical for a broad use of requirements from the individual Soldier to the unit level. The strategic goal is to reduce the demand and improve efficiency by new technology and equipment investments, implementing latest practices and influencing innovative behaviors.⁴⁵

The strategic communication message associated with the objective, More Options, Less Risk, is that ". . . current DoD energy use patterns are not aligned with

national and DoD strategic goals.⁴⁶ Military energy supplies need to be diversified and secured to improve the likelihood to get the energy our forces require to perform their missions. An estimated 40 million gallons of fuel per month was moved into Afghanistan in 2010 alone. This commitment will stay in place at the same time the DoD is maximizing alternative energy sources improvement and deployment, as well as procuring local and regional energy resources to reduce the burden on supply lines.⁴⁷

Finally the strategic communication message associated with the objective, More Capability, Less Cost, is that decisions on force structure and the materiel domain of Doctrine, Organization, Training, Materiel, Leader Development, Personnel, and Facilities (DOTMLPF) must consider their impact on fuel demand, delivery, and usage. All DoD Components consume energy, and energy resupply challenges must be considered in any combat or training scenario. As such, this consideration needs to be included into strategic planning much better than it has been for leaders to make well-versed decisions and account for energy concerns in equipping and utilizing forces.⁴⁸

Overall, the 2011 Operational Energy Strategy has been communicated through each of the Armed Services and also within the Afghanistan theater of operations by the International Security Assistance Force (ISAF) Commander in June 2011. General Petraeus stated, "Changing the way we use operational energy will lighten the logistics burden, minimize tactical distractions to the mission, and deny easy targets to the adversary."⁴⁹ The guidance also emphasized the need for subordinate commanders to take ownership of systems to become more fuel efficient. This includes using risk management techniques to make better energy informed decisions on upcoming missions and future base camp locations and designs for power generation systems

and overall operations. The guidance includes the close oversight in contracts for infrastructure and support.⁵⁰

In July 2011 with the change of leadership in the ISAF Command from General David Petraeus to General John Allen, the level of emphasis in operational energy security remained at the forefront. In an updated one-page memorandum to the troops and civilians of the United States Forces-Afghanistan, General Allen outlined three lines of effort.⁵¹ The first is to improve operating processes for aircraft flight scheduling, fuel distribution, and electrical power generation. The second is to improve equipment, in an effort to become more efficient. Lastly, the memorandum identified taking a hard look at personal choices to turn off lights, air conditioners, and heaters when not needed.⁵² He emphasized, that although it may seem as an effort to save money, "Operational Energy in the battle space is about improving combat effectiveness."⁵³

The key elements Kotter emphasized to communicate the change vision have been effectively executed. The DoD Operational Energy Strategy is simple, concise, short, and provides understandable examples of energy requirements in support of combat operations. The strategy clearly explains the three focus areas of more fight to use less fuel; more options with less risks; and more capability at less cost. The strategy is further communicated through other forums with theater commanders written memorandums for record, synchronized daily, weekly, or monthly video teleconferencing and on-site visits to forward operation base and combat outposts. Leadership is critical in this step to communicate the energy vision and strategy.

Fifth Step. Kotter's fifth step, empowering employees for broad-based action, is designed to remove obstructions and allow action to ensure effective implementation of

the communicated change vision. During this stage the organization may have to overcome several obstacles including structural barriers, providing additional needed training, aligning systems to the vision, and dealing with troublesome supervisors.⁵⁴

Tapping into a source of power within the employees will improve organizational accomplishments and help find the right leadership for future implementation of changes.⁵⁵

Reducing demand for Operational Energy will require DoD Components to take action by annotating authentic and anticipated energy utilization in present and upcoming operations. DoD Components will also have to hasten and implement hi-tech and management originality across DOTMLPF. Looking holistically across the DOTMLPF domains will greatly concentrate efforts to reduce fuel demand and improve energy efficiency.⁵⁶ Both of these requirements support the more fight, less fuel focus areas and are an essential part of the Operational Energy Strategy.

Expanding and securing energy supplies for military operations will require DoD components to vary and develop new power resources that are suitable for deployments in austere environments. The components will also have to ensure steadfast energy provisions for crucial operational tasks at permanent installations and assess the associated short and long term risks.⁵⁷ Building energy into the future force will require DoD Components to examine and convey lessons learned from existing operations. They must ensure solid leadership from both civilian and military along with the commitment to support building energy efficiency into the future force. DoD Components must also incorporate energy concepts, analysis, and planning into their doctrine, training and education.⁵⁸

The format in which the Operational Energy Strategy was written will empower DoD Components for broad-based action. Prior to the strategy being formally published, DoD Components were working on methods to reduce energy consumption through science and technology efforts. The Operational Energy Strategy provides guidance for synchronized efforts and removes obstructions to allow action for employees and effective implementation of the three focus areas: reducing demand, expanding and securing energy supplies, and building energy into the future force.

Sixth Step. Kotter's sixth step is generating short-term wins. Since major organizational change takes time, clearly identifying short term wins up front in the transformation process will provide a gauge for the organization to base the effectiveness and benefits of the change as communicated in the vision. This will reduce the chance of opposition from managers and employee frustration based on the perceived amount of time and money invested on such change.⁵⁹ Short term wins need to have large visible numbers of performance or productivity that employees can see, are unambiguous, and are related to the change.⁶⁰ A balance between good leadership, good management and short term wins is required for a successful transformation. Leadership is required to ensure continuous communication and decision-making for change is combined with management support for targeting objectives, planning, financial expertise, and technical knowledge.⁶¹

As stated earlier, the Office of the Assistant Secretary of Defense for OEPP has the requirement to provide an operational energy budget certification report by the 31st of January preceding the upcoming fiscal year. The first DoD Fiscal Year 2012 Operational Energy budget certification report was signed on January 31, 2011.⁶²

The certification report was published prior to the Operational Energy Strategy in May 2011 as required by public law and therefore not available for DoD components in preparation for development of their FY12 proposed budgets. The budgets were evaluated against DoD components currently available operational energy strategies.

The United States Marine Corps had taken the initiative prior to the Operational Energy Strategy being published during their annual Experimental Forward Operating Base (ExFOB) exercise to test energy efficient initiatives. Several items tested in September 2010 are currently being used in Afghanistan at two patrol bases. These two patrol bases are operating on renewable energy and have reduced the large amount of fuel previously needed on a daily basis. A third patrol base has reduced their fuel requirement by 90 percent. This same patrol base reduced battery resupply requirement (700 pounds) for a three week foot patrol.⁶³

Testing was done again a year later in September 2011 at Camp Wilson at the Marine Corps Air Ground Combat Center in Twenty-nine Palms, California with twelve different vendors. Three materiel categories made up the demonstration that included auxiliary power units, alternators, and solar panels. The common focus for all three categories remained on ability to reduce the amount of fuel required to operate the products while providing additional power for the equipment. Although the equipment may not be ready for deployment, this testing did add to the yearly ExFOB exercise awareness and technology advancements. Overall, this event provided the opportunities for industry to showcase potential capabilities and move energy ideas from concept to the field much faster.⁶⁴

Short term wins in transformation provides the organization to base the effectiveness and benefits of the change process. Although it was published before the strategy, the operational energy budget certification report was a short term win to get the DoD aligned with a legislative timeline requirement prior to the upcoming fiscal year. It also makes DoD Components ensure they complete a thorough review of their internal strategies, research, development, and testing of new technologies with the required analysis in preparation for the certification report. DoD Leadership is essential as part of the Operational Energy Strategy and required to generate short term wins to link people and management systems during cultural change.

Seventh Step. Kotter's seventh step is consolidating gains and producing more change. He reviews the importance of holding firm and ensuring the change process is driven into the organizational culture. Until this happens, the change process is still fragile as he states, "Whenever you let up before the job is done, critical momentum can be lost and regression may follow."⁶⁵ By using short-term wins to then produce more change, asking for more help to focus additional projects associated with this change, and having leadership support from senior management, all form the basis of success in a major change effort. Senior leadership and management are paramount to the success for long term change in an organization to ensure new practices are grounded into the culture and to do extremely well in a rapidly shifting world over the long term.⁶⁶

The Army had taken the initiative prior to the Operational Energy Strategy being published in June 2011 to research, test, and field new energy efficient technology and systems for the Warfighter in combat. The Smart and Green Energy (SAGE) Base Camp is one of the projects designed to lessen the energy requirements by 30 to 60

percent. Within the medium size contingency base, micro grid technology integrates better designed generators and facilities with storage devices and renewable sources.⁶⁷

This micro grid technology makes it possible for power generation to be effectively managed to increase or decrease distribution based on demands from various sectors or sections of a base camp. Previously, base camps had multiple generators constantly running that either ran significantly below capability or way above capacity, both using large amounts of fuel and causing unneeded wear and tear on the systems. SAGE is being tested at Fort Devens, Massachusetts in conjunction with the Program Manager Force Sustainment Systems, and this base concept is designed to have room for 150 to 2400 people or essentially between an Army infantry company and infantry battalion.⁶⁸

The change process reaches a critical point within Kotter's framework for consolidating gains and producing more change. Similar to the United States Marine Corps testing of new technologies in their ExFOB experiments, the Army too has its SAGE testing. Other DoD Components are doing similar type testing, and they all combine to consolidate gains and lessons learned in order to produce more change for the good of all Armed Forces. The DoD knows the importance of holding firm and ensuring the change process is driven into its organizational culture for the long term. The other benefit of consolidating gains is to lead not only the DoD but to be a leader and model for the nation and its energy security.

Eight Step. The final step in Kotter's process is anchoring new approaches in the culture. It is vital that new methods are strongly anchored in group customs and principles. If not, years of work can unravel quickly.⁶⁹ Cultural norms of behavior and

shared values all influence group behavior over time and continue when members of the group change. Culture is important for an organization because individuals are selected and made to feel part of the organization. Culture exerts itself through the measures of many people, making it easier said than done.⁷⁰ The change in culture will come last in the overall transformation process, and this must be understood by leadership and management to ensure the long term success of the organization.⁷¹

In his book *Organizational Culture and Leadership*, Edgar Schein explains how leaders transmit culture through primary embedding mechanisms and secondary reinforcing mechanisms. There are six primary embedding mechanisms with perhaps the most important for this strategy being "what leaders pay attention to, measure, and control on a regular basis."⁷² The remaining five embedding mechanisms include: leader reaction to incidents and crisis, method for allocation of scarce resources, role modeling and coaching, method of rewards and status, and lastly, how personnel are handled to hire, promote, retire and, if required, terminate. Reinforcing mechanisms include the following: organizational design and structure, systems and procedures, rites and rituals, physical space and buildings, stories and legends about people and events, and lastly, organizational philosophy and values.⁷³ Reinforcing mechanisms will enable organizational change when they are consistent with the primary embedding mechanisms. When these mechanisms are effective, the organization begins to formalize what they have learned previously. If these mechanisms are not effective, they may be ignored, leading to internal friction with leaders and employees.⁷⁴

The Operational Energy Strategy is a primary embedding mechanism in the overall shift in culture within the DoD. The sense of urgency has been known for many

years, but it has been highlighted within the last few years with Operation Enduring Freedom and the amount of fuel required to operate and distributed over unimproved roads and high elevations in rugged mountains. As the military Services invest dollars into research, development, and testing to shorten the process from development to fielding while reducing energy consumption, overall cultural change will still take time.

Army leaders will face the challenge to maintain momentum in a mindset to save energy over the long haul and must implement reinforcing mechanisms. According to the Army Capabilities Integration Center, the Army cannot afford to revert back to the way it operated prior to the war in Iraq and current operations in Afghanistan. The Army must realize that fuel is not always abundant in large quantities to sustain forces in future ground operations. Change will occur within the culture and institution of the Army over time, but it will take leadership to ensure that it gets anchored into the force.⁷⁵

Recommendations and Conclusion

This paper's overall assessment of Kotter's eight step management of change framework reveals that DoD Components are well on their way through the first seven steps and are now anchoring this change within the organization's culture. The Operational Energy Strategy approved in May 2011 has fulfilled a FY2009 legislative requirement and met the fundamental need to provide overarching guidance and leadership to DoD components. It has given guidance for reducing energy demand as well as expanding and securing the energy supply in military operations. It also provided broad guidance to build the future force while considering energy security.

Based on this paper's assessment of progress to date using Kotter eight step process, it identifies three broad recommendations to ensure continued cultural change

within the DoD Components with respect to the Operational Energy Strategy. Anchoring new approaches for change within the DoD will require primary embedding and reinforcing cultural mechanisms. These three recommendations are centered on: reviewing pending national energy legislation to incorporate relevant elements in an updated energy strategy, identifying specific ways for DoD and the Army to add emphasis for this strategy through changes in its doctrine, and to encourage all levels of leadership to properly focus its attention on this issue. They will also ensure cultural change is enduring for the years ahead that follow the Operational Energy Strategy.

The pending Fulfilling United States Energy Leadership (FUEL) Act was introduced in the United States Senate on June 16, 2011. Its overarching goal is to reduce dependence on foreign oil through seven initiatives. These initiatives include highly fuel efficient and electric cars, expanding oil and gas development, alternative fuel development, advanced battery technology, clean coal technology, nuclear power, and home energy efficiency.⁷⁶ It is designed as ". . . a blue print for national energy policy intended to lessen America's dependence on foreign oil, reduce gas prices, and strengthen the national economy."⁷⁷

There are many initiatives within this proposed legislature that may be relevant to DoD policy and programs. Hence, now is the time to review and identify this proposed legislation's potential impacts to better prepare DoD leaders for potential congressional questions or testimony on this subject. Further, if this legislation is approved in the next year, this paper recommends that the current DoD Operational Energy Strategy be quickly updated to align with national policy and direction. This extensive review is in line with primary cultural embedding mechanisms, specifically "what leaders pay

attention to, measure, and control on a regular basis.⁷⁸ This will enable the DoD to influence pending legislation, if necessary, and quickly implement its provisions when it is passed to synchronize efforts to reduce Operational Energy consumption.

Second, the DoD and Joint Staff should update the Universal Joint Task List (UJTL) to add Operational Energy as part of its planning and evaluation tasks. The current UJTL with change four dated October 12, 2010 includes numerous tasks relating to energy; however, they are not articulated in terms of Operational Energy as defined by the FY09 NDAA. The UJTL energy tasks are geared more towards electromagnetic energy, space, foreign humanitarian support, and disaster control measures.⁷⁹ To better focus DoD efforts associated with the cultural change mechanism of reinforcement for systems and procedures, this paper recommends the UJTL be updated to add a specific task with Operational Energy planning and evaluating to its functional elements.

The Army, as the major ground force consumer of Operational Energy, should relook at updating its current training doctrine Field Manual 7-15, The Army Universal Task List (AUTL) with change nine as of December 9, 2011. This manual contains information with respect to energy, specifically associated with support for economic and infrastructure development within full spectrum operations.⁸⁰ In the remaining parts of the manual, there was no reference to Operational Energy. Therefore, this paper recommends that the AUTL be updated to add Operational Energy planning, executing, and evaluating as a task under Movement and Maneuver, Protection, and the Sustainment Warfighting Functions. This recommendation is in line with the cultural change mechanism of reinforcement for systems and procedures.

Lastly, public laws, directives, and books used in this paper's research have identified leadership as crucial to implementing change. Army Leadership is defined as ". . . the process of influencing people by providing purpose, direction, and motivation while operating to accomplish the mission and improving the organization."⁸¹ The three levels of leadership are strategic, organizational and direct.⁸² All three levels of leadership will be required to implement the Operational Energy Strategy through education, training, and better strategic leader communication. Hence, this paper recommends that this energy strategy be institutionalized within all three levels through an extensive leader development program. The emphasis on reducing energy consumption needs to be added to leaders' pre-command courses and intermediate level education staff officers who will be future leaders. This recommendation is in line with the cultural change embedding mechanisms for regular leader involvement.

Our senior civilian and military leaders have already implemented seven steps according to Kotter for major change in the DoD with the Operational Energy Strategy. By incorporating these steps over the past several years, the three focus areas of the Operational Energy Strategy to have more fight with less fuel, more options with less risk, and more capability with less costs serve as guiding principles for the DoD Components to put into practice. Understanding Edgar Schein's primary embedding mechanisms and secondary reinforcing mechanisms will also assist in the change process. The recommendations to review pending national energy legislation, making changes to Joint and Army Doctrine, and providing solid enduring leadership will anchor new approaches within DoD culture for the years ahead that follow the Operational Energy Strategy, which is Kotter's eighth and final step for the management of change.

Endnotes

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